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"Life in itself is neither good nor evil: it is the scene of good or evil, as you make it; and if you have lived a long day, you have seen all. One day is equal and like all other days; there is no other light, no other night. This very sun, this moon, these very stars, this very order and revolution of things, are all the same your ancestors enjoyed, and that shall also entertain your posterity."—Montaigne.

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VOL. VIII DECEMBER No. 12

EDITORIAL

THE CONSTITUTION

By George B. Hogaboom, Chairman of the Committee for the Revision of the Constitution

The Constitution of this Society is to be rewritten. There comes a time in all work when it is well to take a retrospective view of what has been done. In an organization such as this, there come rapid developments and new ideas that require different action and other means of lawful consideration. The Society has been progressive. The members have broadened their field of vision, and thru the A. E. S. strove to build up, not only themselves but their fellow-artisans.

At conventions amendments have been offered that had for their object either the restriction of the growth of the Society or the breaking down of conservatism. Some have been good, some bad, but as a whole they have been commendable. Some Branch Societies seemed to make a hobby of presenting amendments. The delegates to conventions have had their individual characteristics reflected in the support or in the opposition of the offered amendments. Some have been openly hostile to progressiveness, others have probably taken too long a leap in the future. Some have played the game of "put and take," others have turned Time backward in its flight, and have played the part of a spoiled child. It is a trite saying that "it takes all kinds to make a world"—it does, but it takes strong, broad-minded, unselfish men to build. Those who have been penurious, either with knowledge or with money, have never contributed much to the building up of a Society or fraternal organization. It was the most unselfish personal thought that brought the A. E. S. into existence, and it is only thru that same unselfish personality that the organization will prosper. Stand-pat is but another name for decay.

In the building of a new constitution, don't let us build that which will last for our day alone, but build one that will outlast our short sojourn. The whole superstructure for all time cannot be builded now, but a strong, secure foundation can be laid and a framework raised that will be a sentinel of progressiveness.

The Past-Presidents have been chosen as the revisors. No better selection could have been made. These past pilots have watched the Society grow and have directed the course, and are capable of planning for the future. They alone cannot do all. Each member has his part, each Branch its work, and the Supreme Society must be the court of decision. This court will have men who represent you, and you must choose them. Let them be men of courage, men of broad vision, and men who have not lived their lives but are living, and have a goal set

for their future. It is upon these men that the whole Society must depend, and if ever delegates were carefully chosen, let them be so this year. Don't send men who go to conventions for a pleasure-trip; send those who will attend to business. Don't send men just because they are willing to pay their own expenses. You send them and send them to represent you and not their own selfish interests or personal ambitions. Send men who know how to win, how to lose and how to, in the face of disappointment, forget to criticize; men who remember and follow Mr. Cattell's advice: "If you can't get what you want, be satisfied with what you got."

PLATING EXPERIENCE IN GERMANY AND AUSTRIA DURING THE WAR

By Joseph J. Triskia, Expert Electroplater

(The experience gathered during the war will undoubtedly be utilized all over the world. It will interest the American plater to learn what substitutes Germany and Austria had at their disposal, when various chemicals commenced to be unobtainable that were essential to galvano-technique.

I will give a translated reproduction of articles which appeared in a fortnightly magazine, **"Die Metallwaren-Industrie und Galvano-Techni,"** Leipzig-Gohlis, Germany).

As a substitute for hepar sulphuris (sulphuretted potash), sulphur ammonium and carbonic ammonium, which are used to sulphurate copper- and silverwares, as well as for coppering and silvering, a composition (essence) of lime and sulphur can successfully be employed. To prepare this oxide essence, take 5 litre (1 litre equals nearly one quart) water in an iron pot. Mix with 1000 grams (a gram equals nearly 15½ grains Troy—28½ grams—1 oz.) ordinary pulverized lime, and 400 grams flowers of sulphur. Let the mixture boil for one hour, when the essence will turn to a yellowish liquid which is the finished product. The dregs which form can be used for the production of essence if a little lime and some water are added and boiled again. To apply, follow these directions: For one litre of water (80° to 90° Celsius), take 4 to 6 cubic cent. of the essence, dip the well-cleaned articles into it for several seconds, until the desired coloring is obtained; rinse with pure water thoroly, and shade with pumice stone powder, or use a brass-wire brush, adding soap roots and glue water; dry and lacquer. If a distinctly dark coloring is to be obtained after scratch brushing, repeat dipping into the hot oxide solution. It is entirely up to the galvano-technologist to produce all colors and shades from reddish-brown to deep-black without difficulty and cheaply.

Gray to Black Coloring on Iron

Dip the iron parts, well-polished and divested of fat (grease or oil) into the following warmed solution: 1 litre of water, 4 c.c. sulphuric acid, 20 grams Antimony Sulphide. Soon, rather in a few seconds, the iron parts or wares will be covered with a brown layer, which gradually turns into black. When the desired shade of color is obtained, rinse the article with pure water thoroly, draw thru solution, warmed to 30° Celsius, of zyankalium (potassium cyanide), then rinse again with clean water and dry in wood chips or in centrifug (centrifugal dryer) until a shining black appears.

Tasteful shading in accordance with this method will make it possible, after articles have been tinned, to get beautiful old-silver imitations on, say, iron signs, medals, etc.

To Pickle and Bright-Dip Redhot Iron or Steel Parts

A solution of sodium sulphate, and salt (common salt) added, in water, will substitute for sulphuric acid. For 5 litres of water, warmed to 30° Celsius, take 60 to 100 grams sodium sulphate, 20 to 40 grams salt. Mix these salts thoroly, until completely dissolved. The process of corroding can then be commenced. The dipping of the articles into the solution will cause the warming of the solution, which is due to the forming of muriatic acid (from the kitchen salt), and which at once will work in on the iron, giving, within a very short time, a finely-pickled surface. Rinse article well in lime-water and dry at once after corroding.

As a Substitute for Bright-Dip from Nitric Acid

Chrome potash has been employed, which to a great extent did answer the purpose. This chrome potash dip consists most of the time of some 10 litres of water, 4 kilograms sulphuric acid, or 4 kilograms muriatic acid, and 800 to 900 grams of chrome potash or nitrate. If chromic acid is on hand, 500 to 600 grams will suffice.

If lack of chrome acid compels the use of nitric salts, which can be obtained as byproducts, even better results than those obtained thru chrome potash dip will be attained. Directions for the use of nitre salts: Put 3 litres sulphuric acid into 3 litres of water. Dissolve independently in 1 litre of water 400 to 500 grams nitro-muriatic(?) potash or natron (warming process(?), add to thinned solution of sulphuric acid and mix well. The so attained product is ready for use, the action of which may be increased thru the addition of common salt, and warming to 30° Celsius. Almost the same

results can be obtained on brass and copper articles with this method, as with the nitric dip. The difficulties occurring when galvanizing (electro-plating) articles handled with chrome potash dip, are eliminated entirely.

The white war metal, on the market under various names, represents a highly valuable zinc material, which can be worked up as press and roll zinc when properly united with copper and aluminum. It is being used broadly as a substitute in the metal industry. Articles made of the "White War Metal" require particular care when galvanized, so as to assure fine products.

Coppering thru galvanic process must be brought about thru a copper bath, simply composed, but containing rich metal quantities. The composition of a well-working copper bath consists of the following salts: 1 litre of water, 80 grams sulphate of copper, 90 grams soda (crystallized), or 35 grams soda (calcareous), 75 grams zyankalium (potassium cyanide), 25 grams potash. In order to obtain a brighter deposit, add 5 grams borax. 10 litres of that copper bath should be prepared in the following manner: 800 grams sulphate of copper, placed in an earthen sieve or linen bag, will dissolve in 3 litres clean water, warmed to 60° to 70° Celsius. Meantime dissolve in another 3 litres of warmed water, the 900 grams soda (crystallized), or 350 grams soda (calcareous), stirring continuously. Then pour that soda solution carefully into the sulphate of copper (blue vitriol) solution. Greatest care must be taken, inasmuch as the process will be followed by the formation of carbonic acid, which foams and thereby doubles or triples the mass. A properly-sized pot or tub ought to be chosen, in order to avoid the running over of the mass. The carbonic acid copper (copper carbonate) so formed must be poured into the earthen or wooden tub, placed there ready for use. Dissolve then in 4 litres clean warmed water 750 grams zyankalium (potassium cyanide), 250 grams potash, and 50 grams borax (all these salts put into the earthen sieve), stirring continuously, and pour the carbonic acid copper (carbonate of copper) solution in the tub. That solution, well-mixed, will discolor immediately and turn into a colorless or yellowish solution. Should the discoloring not take place, some more zyankalium (potassium cyanide) must be added. Permit to set down over night, then draw the clear fluid out with a hose and place the thus obtained finished copper bath into the meanwhile cleaned tub. (Tub is usually called tank.)

The bath will show 12° Baumé, and may be galvanized (sized) at once at 2.5 volt power and proper anode.

The process of coppering will be made possible in a shorter time and turn out to be of more brilliancy when the bath has been warmed to 20° to 25° Celsius.

As is known, the wares must be divested of fat with lime pap (slacked lime) or electrically cleaned, since no firm layer will settle down without previous thoro cleaning. When coppering articles showing cavities and elevations,add to each litre of the bath 5 to 8 grams chlorammonium (ammonium chloride) which will cause a livelier flow (better conduction) and make possible an equal copper layer in the cavities.

After the coppering, performed in that bath, very rich in metal, for a period of 10 minutes, the articles are handled in the usual way, i.e., rinsing, scratching (scratch-brushing), drying, polishing, etc., according to the requirements.

Brass-plating of the white war metal can fairly well be accomplished in brass baths, containing metal in ample quantities, and which is warmed; to stand 10° to 12° Baumé, to which again 5 to 8 grams of chlorammonium (ammonium chloride) per litre is added.

In order to copper cheap articles made of war metal, the prices of which cannot stand galvanic coppering (electro-plating), employ the method of dip coppering without current. Such a bath, which has stood highest tests, consists of 1 litre of water, 35 grams sulphate of copper, 30 grams cremortartari (cream of tartar), 60 grams of caustic potash or caustic soda. Draw the well-polished and of fat-divested articles (well cleaned) thru a 10% zankalium (potassium cyanide) solution, and dip at once into the cold coppering solution, where, in a few seconds, the articles will be covered with a light red copper layer. These coppered articles must immediately be well-rinsed in clean water, and dried in chips (sawdust) or centrifugal. After that lacquer, or oxidize in the manner described previously.

Oxidizing and Coloring

A light-green or dark-green shade of coloring, with enamel effect, on that war metal can be obtained in the above-mentioned copper solution, which is prepared only with caustic potash and warmed to 40° to 50° Celsius. Dip the well-cleaned and brilliantly-polished articles for a few seconds into the solution; as soon as the coloring sets in, rinse quickly, dry; lacquering may be left out. This color is very durable, possesses a distinctly light-green or dark-green shade, which

shows more of an enamel effect the better the articles have been polished. This coloring cannot be attained with a solution of caustic soda.

Red, violet, and blue shades on the same metal will be obtained if the articles go thru the aforementioned dip, i.e. coppering process, and are dipped into the solution for green coloring during several seconds. The colors appear at once in succession. As soon as the desired shade is obtained, rinse, dry and finish by lacquering.

A simple and inexpensive iron bath for coloring various metal articles "field-gray" can be prepared as follows: Put to each litre of water (in an earthenware tub of proper size) 100 grams of chlorammonium (ammonium chloride) and dissolve without interruption. Then mount electrodes to the tub (stoneware tank or crock), and connect with main current. Continuing, hang on both electrodes, i.e., positive and negative, well-corroded (well-pickled), o nsheet-iron into the solution of sal ammoniac, permitting a current of 3:5 volts to run thru for 2 hours. After 2 hours the color of the solution in the tub will turn greenish, indicating that the electrolyt is saturated with iron. A test with a bright piece of sheet brass, which is attached to the negative electrode, will show at once a gray layer. The work may commence now. The articles made dull and divested of fat (cleaned) must be put into this gray bath at 2.5 volts current. In two minutes the articles are sufficiently colored; then they should be well-rinsed, dried, and covered with zapon-lac.

Old Silver on Tin-plate

Articles made of tin-plate (white iron-plate) and pressed, as cigarette cases, album mountings, handbag frames, etc., can be covered with an old silver (oxidized silver) coloring, the effect of which has a striking resemblance to the original old silver, and further has the advantage of being attainable at a reasonable price. First get the surface of the tin-plate article entirely dull by using pumice stone or sand-jets (sand blast). If pumice stone powder is applied, take a half-worn rotary brass-wire brush which is used for working on silver, wire diameter being 0.15 millimeter, at 500 to 600 revolutions per minute; add fine pumice stone powder, which, with water, is stirred to a thin pap (cream). Some of that pap (cream) is stirred to a thin pap (cream). Apply some of that pap (cream) to the surface and draw with light pressure under brass-wire brush. Take special care so as not to brush the

elevated arts of the relief too hard, because an old-silver effect might not be obtained if the iron should re-appear on the surface. After rinsing the dull-made article,dry in wood chips or sawdust, to assure permanence of work. The process of making articles dull by using sand-jets (sand blast), is preferable to the method above described for the reason that the old-silver share turns out finer. Use very fine quartz sand (aranaceous quartz) or glass (vitreous) powder in the customary way. Again, great caution should be taken in order that the tin-layer be not exposed, permitting the iron to re-appear. When the articles have been made dull by either of the described methods, apply the oxide fluidity (oxidizing solution) to the dry surface. The luiquidity solution consists of 100 cc. of water, in which 32 grams of copper nitrate has been dissolved. Rub in with cotton waste or sponge, but do not apply too much of this solution. After an experiment, the proper quantity will soon be found. The goods exhibit a dark layer immediately after coming in contact with the oxide solution, which gets darker when brought into the light. The layer must be dried with a soft cloth. After five minutes, shade carefully with very fine pumice stone powder and water. Shading merely means, as is known, the rubbing off of the dark oxide from the elevated parts of articles, whereby the white metal—in this instance tin—comes thru creating that old-silver effect. The shaded wares are rinsed, dried and covered with lacquer. If desired, add 1 to 2 grams of nitrate of silver and get deep black shades while rubbing. If the shaded, shining relief parts are touched with a strong potassium cyanide silver bath, they will have a most beautiful silvery appearance. That can ordinarily only be seen on the better kind of metal wares.

"Field Gray"—Dull Coloring on Plate Tin and Sheet Tin (Tin-plated Ware)

The popular "field gray" coloring on plate tin made of war metal, can easily be obtained by the following procedure. Dissolve successively in a half litre of water 15 grams of chromic acid, 15 grams dithionate (?) soda and add 25 grams of sulphuric acid; stir the entire solution thoroly, after which the oxidizing solution will be ready for use. The well-cleaned sheet-metal must be covered equally with a wad of waste or a sponge, which has been dipped into the solution, whereby a dull green-gray coloring sets in at once. After thoroly rinsing and drying, cover eventually with splash-lacque or zaponlac

(lacquer). There is a sheet metal on the market that can be made dull-shaded before coloring with very fine sand-jet (sand blast). The result is much better, soft, lustreless, satin-like dull, which will show up especially well on buttons or other stamped (punched) articles.

Brown Bronze on Medals

Medals or medallions made of tombac or brass, are made dull with a sandjet (sand blast), and dipped into the following bronzing solution: Dissolve 15 grams of gold-sulphur(?), 6 grams of caustic potash and add 40 grams spirits of ammonia; within a few minutes the articles will be covered with a beautiful brown shade of bronze. Then rinse and work up with brass-wire brush (scratch brush), permit to dry and treat finally with wax brush. If a dark bronze shade is desired, repeat dipping into the bronzing solution after scrubbing with brass-wire brush, until the desired color is obtained and continue as above.

This inexpensive rich bronzing solution does not disintegrate as do liquids containing cupric-chloride or potassium chloride, and can be preserved and applied with the same success on future occasions.

PLATING BRASS BAND INSTRUMENTS

By J. B. Hawley, Grand Rapids

Instruments of this class are first filled with water and then corked; the first to sink them below the solution, the second to prevent solution from getting inside. They are then sand-blasted, using about 6 pounds air pressure, inspected, and sent to the plating-room.

They are then put through a solution of a proprietary cleaner to remove all dirt and grease, then rinsed thoroughly and put through a cyanide solution of about 6 oz. per gallon; then, without rinsing, are taken through a cyanide mercury dip containing one-fourth oz. of mercury to 6 oz. of cyanide, with enough caustic soda to assist in keeping dip clear. This first mercury dip is to keep the instrument from tarnishing.

At this stage they are taken to the scrubbing tank and inspected for bad spots or lead on joints, then brushed thoroughly with FF pumice stone, rinsed in water, dipped again in mercury, rinsed, and taken to the strike-tank, and given a heavy strike. The strike has about 3 oz. of silver per gallon, with a large excess of cyanide. Instruments are then taken to

the scrubbing-tank for inspection; after inspection, they are taken to the regular silver, where they are plated 3 to 4 hours with a current of one-fourth to one volt, 4 amperes per square foot. Work is given a vertical motion.

Our tanks hold 280 gallons of solution, with ten anodes, 6 x 24 inches, 20-guage thick. Solution stands at 18° Baumé. Upon removing from the plating-tank, the instruments are rinsed, all slides removed, and scratch brushed on a 4 to 8-inch brass brush. Parts that cannot be reached with a scratch brush are sanded with fine washed sand. The instruments are then ready for the final finish, which is done by burnishing.

Gold-plated instruments are first silvered in the regular manner, and after brushing and sanding, are plated in a gold solution three hours. The gold solution is kept as near three-fourths oz. of gold per gallon as is possible, and run with two volts. Silver-plated instruments that are finished with gold bells and engraved patterns, are given a coat of stop-off varnish on all parts that are not to be gold-plated. After gold-plating, the stop-off is removed with gasolene, and the gold parts burnished.

A SIMPLE METHOD FOR MAINTAINING THE NEUTRALITY OF NICKEL-PLATING SOLUTIONS.

By Oliver W. Storey.

This article describes a simple method developed at the C. F. Burgess Laboratories, Madison, Wisconsin, which overcomes the necessity of making any quantitative determinations or calculations for maintaining the neutrality of nickel-plating solutions. The value of this method has been proved in the nickel-plating department of the Malleable Iron Range Company, Beaver Dam, Wisconsin, where it has been in continuous use for about eighteen months. During this time the plating foreman, Mr. John Maier, reports that he has not had one defective batch of nickel-plating. Sheet steel and malleable iron are plated at this plant, the nickel being plated directly, without a copper flash.

Before the adoption of the present method, the plating solutions were tested for alkalinity by using litmus paper, and any alkalinity corrected by adding sulphuric acid. However, when the solution was neutral or acid, it showed acid to litmus paper, and the degree of acidity could not be readily

judged and often high acidity was only discovered by the appearance of pitted deposits.

While nickel-plating baths may be controlled by a quantitative determination of the acidity or alkalinity, this method is cumbersome, especially for a non-technical man. It not only involves the manipulation of chemical apparatus which usually requires that considerable skill must be exercised to obtain correct results, but calculations of a rather involved nature must sometimes be made. It was desirable, therefore, to develop a method which would be simple, rapid, and readily used by the men in the plating-department.

A study of the subject resolved itself into trying to find an indicator which would properly show the nickel-plating solutions as acid, neutral, or alkaline, as indicated by the character of the plating. If a proper indicator could be found, the problem resolved itself into the method of applying this knowledge. In the experimental work, three solutions were used, which were respectively slightly alkaline, neutral, and slightly acid, as indicated by the character of the work turned out at the plant. The solutions were only slightly acid or alkaline in order to obtain an extremely sensitive indicator if possible.

Methyl orange was tried, but this showed all three solutions to be alkaline. Litmus showed both the neutral and acid solutions to be acid, as was the case with the paper when used in the plating-room. Lacmoid gave a blue coloration with all three solutions, indicating that they were alkaline to this indicator. Cochineal gave a purple color with all three solutions. The only indicator which indicated a difference between the three solutions was methyl red. When a few drops of methyl red were added to several cubic centimeters of the alkaline solution, the solution turned a yellowish green; the neutral solution when treated with methyl red became an orange color, while the acid solution turned a brownish purple; with decidedly acid solutions the methyl red turned the plating solution purple. It was evident, therefore, that the methyl red was sensitive enough to show a decided difference in color between the acid and alkaline plating-solutions.

Methtyl red is usually sold in the form of steel blue crystals which are the acid salt. Several different ideas were tried to determine the best method of using methyl red in this form as an indicator. Since these steel blue crystals of methyl red are practically insoluble in water, it was impossible to obtain satisfactory results using the indicator in powdered form and adding to the solution. However, since the sodium salt of

methyl red is highly soluble in water and is as sensitive as the acid salt, the water solution of the sodium salt was made and gave excellent results as an indicator. While a solution of the acid salt in denatured alcohol can be used, trouble may be encountered because of the acid nature of some of the denaturants used. Where pure alcohol is available this may be used for dissolving the methyl red, although the cost of this alcohol is excessive.

The methyl red solution is used as follows: A solution of methyl red is made according to the directions which follow later. This solution is used in a dropping bottle so that the drops may be easily counted when added to the nickel-plating solution, because a definite quantity must be used. In the absence of a dropping bottle, a medicine dropper will answer the purpose. A certain definite quantity of the nickel-plating solution is put into a vial, test tube, or small bottle. The quantity is about 5 cubic centimeters, or about two teaspoonsful. Six or seven drops of the indicating solution are then added, and the two solutions shaken. The color which results is noted, and if necessary may be compared to a color scale prepared by making similar solutions of definite acid, alkaline, and neutral solutions of nickel-plating solution to which the requisite amount of methyl red is added. The color which results when the methyl red is added to the plating-bath determines the condition of the plating-solution. After a little practice the plater can tell readily the exact condition of a solution, and he can then add the correct amount of sulphuric acid to the bath if it is alkaline, or ammonia if it is acid. The plater can soon determine the exact color which indicates the correct condition of the plating-bath, and can then judge closely the amount of ammonia or sulphuric acid which must be added. The exact color cannot be given, because baths of varying composition will require a slight difference in acidity or alkalinity, causing a slight difference in color for the correct neutrality. It was found at the plant of the Malleable Iron Range Company that the color for the baths not containing sal ammoniac was slightly different than the color required for the baths containing sal ammoniac.

This method of testing is extremely simple, and because of its simplicity the foreman plater can in a few minutes test every tank each morning. The slightest acidity or alkalinity is detected, and thereby may be corrected, putting the baths in proper condition each morning, and in this way preventing any spoiled work due to this cause.

The solution of methyl red may be made from the steel blue crystals of methyl red, which is the form in which this indicator is usually sold by chemical supply houses, as follows: A 0.2% solution of caustic soda is first made. Enough methyl red is added to 100 cubic centimeters of this solution so that no more dissolves, usually about 2 grams. The solution of methyl red in caustic soda is then diluted with 2,000 cubic centimeters of distilled water and filtered, resulting in a bright red solution which works satisfactorily.

If possible, the water-soluble methyl red should be purchased. However, it is doubtful whether this salt can be purchased at the chemical supply houses. One gram of the water-soluble salt is dissolved in 1,000 cubic centimeters of distilled water and this solution used in exactly the same manner as that made from the acid salt. The steel blue crystals may also be dissolved in alcohol in the same proportion and used in a similar manner.

This method of testing, though simple, must be carried out carefully. The same amount of plating-solution and indicator should be used each time. The bottle, test tube, or vial should be marked so that this is done. Unless these precautions are taken, the test becomes valueless.

When the test is carried out as directed, the color of the resulting solution will vary from a light green or yellow-green when alkaline, and successively yellow, orange, brown, brownish purple and purple as the nickel-plating solution is neutral and then increasingly acid.

C. F. Burgess Laboratories, Madison, Wis.

WHAT THE BRANCHES ARE DOING

NEW YORK

The regular meetings of the New York Branch were held Nov. 9th and Nov. 25th. President J. A. Stremel presided. Two applications were received for associate membership. It was regularly moved that the applications take the regular course.

The founders' meeting was postponed to take place the fourth Friday in January, 1922.

Mr. Stremel suggested a review of papers published in our monthlies to be read and discussed at each meeting to try and interest the members to bring forth discussions under good and welfare.

Mr. Joseph Haas gave a lengthy talk of the interest taken by the Bureau of Standards. Mr. Haas outlined some of the work accomplished, and promised to give our Branch a demonstration in determin-

ing the acidity of nickel solutions at our next meeting. Mr. Haas also stated that the Bureau of Standards could accomplish a great deal more if the members would co-operate with the Bureau.

The methtod of determining the acidity of nickel solutions is one of the best methods in use at the present time.

It was regularly moved that the matter of having questions asked thru the Editor and discussed and answered thru the Branches and printed in the REVIEW be approved of.

New York Question-Box

QUESTION: Does it make any difference where chunt is placed, positive or negative pole?

ANSWER: It makes no difference, but it is usually placed on the negative pole.

Rheostats were discussed as to what wire is the best to use.

ANSWER: Michrom wire is the best. In doubling the wire, it increases the carrying capacity four times. Iron wire scales, lessening the current used. It was suggested to use parafine wax on commutators, vaseline or sperm oil as a lubricant.

We Want to Know:

QUESTION No. 1: Does acetate of lead, dissolved in caustic soda, used as a brightener in cyanide copper, have any detrimental effect work for perfect oxidizing.

QUESTION No. 2: What is the best way to overcome the spotting out of brass-plated steel and other metals?

QUESTION No. 3: What is the best way to remove scale on steel springs without breaking?

MILWAUKEE

The regular business meeting of the Milwaukee Branch was held Nov. 12th at our hall, 321 Third St. President H. E. Armour presided. Three applicants were elected to membership. Owing to our November educational meeting coming on Thanksgiving Day, it was postponed to our next regular business meeting, Dec. 8th, when our Librarian will have some very interesting subjects to discuss.

BRIDGEPORT

Our November 18th meeting was held in the laboratory, with a large attendance, with President J. W. Slattery in the chair. A motion was made and seconded that the chair appoint a committee to meet in Providence Dec. 10th and discuss matters concerning the 1923 New England Convention. President J. W. Slattery introduced Mr. G. Tucker, who read an interesting paper on "Buffing Compositions," which held the attention of all who were present. A rising vote of thanks was given Mr. Tucker. Mr. Thomas Slattery, visiting from Washington, D. C., Mr. Snyder of the New York Branch, Mr. Clark and Mr. G. B. Hogaboom were called upon to say a few words, which helped make the meeting a success. The meeting adjourned at 10 p. m.

WATERBURY

Waterbury Branch held its first monthly meeting Nov. 18th. There were 25 members present.

Mr. John Oberender, who is connected with a lacquer concern, gave a fine talk on pigment lacquer finishes. About 25 samples were passed around and the method of obtaining each finish was explained. A vote of thanks was given Mr. Oberender for his able talk.

Our next meeting will be held on Dec. 9th, at which time Professor Luther A. Baleney, former Professor of Metallurgy at Yale Sheffield Scientific School will give a talk on "Gold and Silver from the Mine to the Plater."

The meeting of the fourth Friday of the month was cancelled on account of Thanksgiving.

BOSTON

Boston Branch met Friday evening, Nov. 18, with President Nihan in the chair. Past President Mackie gave another one of his lessons which was very interesting, and the members all seem to take to the lessons very well. A discussion followed and all the members took part in it.

Boston Branch asks another question to be answered by the other Branches.

We Want to Know:

QUESTION: What reaction takes place in a nickel solution where boric acid is used in the presence of nitrogen and ammonia?

BOSTON

Boston Branch met Friday evening, Dec. 2, with President Nihan in the chair, and with more members than we have had for a long time. Our Past President Mackie must be drawing them now with his lessons on chemistry. After the regular order of business, a committee of two to look for new quarters reported that they had made arrangements with the American House, Boston, to hold our meetings there, and the Branch accepted the report and moved that we meet at the American House after this time. Mr. Mackie gave his third talk on the nickel solution, which was very interesting and a discussion followed lasting two hours. The meeting adjourned at 10:30 p. m., to meet at the American House on Dec. 16th.

DETROIT

The regular meeting of Detroit Branch on Dec. 2nd, was well attended. Our young president, Phil Brockway, is handling the gavel in a masterful manner, and all the members are enjoying the meetings.

The Educational Committee is arranging for an address in January by Mr. M. G. Kopf of Dayton, Ohio. The subject will be: "Corrosion, its Cause and Effect." This will be a joint meeting, and other nearby Branches and the local Electro-Chemical Society will be invited.

Brother Shepherd of the Standard Plating Works, of Flint, explained the very interesting way in which he had installed electric heaters for heating his nickel solution tanks.

As larger quarters are necessary for our meetings, members will be notified where the next meeting will be held, and at that meeting the date of the address by Mr. Kopf will be announced. Let all attend on this occasion.

The following subjects for discussion are open for suggestions from other Branches who may have come to definite conclusions, and if so, let us hear from you.

We Want to Know:

A. Eddy and neutral currents in barrel-plating. How to overcome them?

B. Does the use of air agitation in nickel zinc, and copper-plating have a tendency to cause puitting and pin holes as has been suggested by Dr. Watts in one of his articles on "Lead Plating"?

C. Mr. Woodmansee asks for suggestions for overcoming staining of matt finish white nickel.

CONNECTICUT VALLEY

A regular meeting of the Connecticut Valley Branch A. E. S., was held on Wednesday, Dec. 14th, at the Y. M. C. A., Hartford, Conn. As there was a small attendance and no special business on hand, we adjourned early. The next meeting will be held on Tuesday, January 10, 1922.

BRIDGEPORT

Our Dec. 16th meeting was held in the Laboratory, with a good attendance. The minutes of the previous meeting were read and accepted. Mr. Oberender, who represented the Bridgeport Branch at a meeting of the New England Branches in Providence, gave a complete report of the arrangements made for the convention in 1923.

A motion was made and carried that we renew the subscription to "The Brass World" for another year.

Mr. Slattery introduced Mr. Burt, a chemist, who spoke a few words on forming a class in chemistry. It was voted that all members interested in forming a class in chemistry, meet in the Laboratory with Mr. Burt on Friday, January 6, 1922.

After extending a Merry Christmas and a very Happy and Prosperous New Year to all the members and their friends, President Slattery turned over the chair to Mr. Dunn for the balance of the meeting.

Mr. John Oberender, who was scheduled as the speaker for the evening, gave a very interesting and instructive talk on the use of pigments in lacquer enamels, exhibiting samples of various finishes and explained the methods and the lacquer mixtures used in obtaining the finishes on the different samples shown. Some of the samples were very good imitations of chemical finishes, and it was hinted that if John kept up his work, he would have all us platers working around a spray instead of a tank. Mr. Oberender was given a vote of thanks at the conclusion of his talk, and then spent some time answering the questions pumped at him.

Mr. Dunn read a question-box card asking: "What is the best soap or materiral to use to clean small articles that have been greased buffed"? This question was discussed and various methods were suggested.

The meeting adjourned at 10:30 p. m.

The Bridgeport Branch still has a number of copies of Dr. F. C. Stanley's talks to platers, for sale. Any Branch wishing to obtain copies can order them from the Secretary.

ST. LOUIS

Our regular meeting, held on Dec. 3, was well attended. After routine matters were disposed of, it was announced that our annual "get-together" would be in the form of a Dinner-Dance, to be held on January 28th. The committee in charge consists of E. J. Musick, chairman; G. J. Brandt, C. T. McGinley, E. W. Mueller, and F. E. Terrio. Later the committee announced plans for a lively time, even going so far as to state that even our dignified secretary would lose control of his feet and become a circumnavigator. They regret that Wichita is so far from St. Louis. Ed has our "sympathy."

The subject of the evening, "Preparing Metal Surfaces for Plating," was thoroughly discussed after leads by C. T. McGinley, G. Powitzky, and G. Brandt. Many short-cut and economical methods were presented for some classes of work, which ordinarily are put thru expensive operations.

Our next meeting will be held on January 7th. Subject, "Compositions."

PHILADELPHIA

The Annual Banquet of the Branch was held November 19th, and was a huge success. There were over 100 present. Among them was a large delegation from the New York and Newark Branches. This was purely a social affair. As the ladies were guests, there were only short talks given by Dr. Lukens, Supreme Secretary Sterling and Supreme President Uhl. After the banquet the rest of the evening was devoted to dancing. As a souvenir each lady was given a card tray finished in French Gray and paper hats and other novelties were distributed.

Bill Snyder with his smile, and Smith of Newark ably aided the magician, Smith being much surprised when the magician handed back his watch and chain at the end of the performance.

The Committee deserves to be highly complimented for their work in making this a success.

PROVIDENCE-ATTLEBORO
ELECTRO-PLATERS TALK SHOP AT FIFTH ANNUAL DINNER

Optimism and Betterment of Profession Keynote of Speeches

Optimism, the feeling of certainty that the American electro-plater would by the intelligent application of the results of chemical research be able to offset the competition of the lesser paid workmen of the Euro-

pean countries, was the keynote of the speeches at the Fifth Annual Dinner of the Providence-Attleboro Branch of the American Electro-Platers' Society at the Narragansett Hotel last night.

Harry Sholes, president, introduced Honorary President Dr. Albert W. Claflin as toastmaster, who, after a brief introductory speech, called upon Floyd T. Taylor, general manager of A. P. Munning & Co., who gave a resumé of a trip thru England, Belgium, Germany and France, commenting on general conditions in those countries, and upon the difference between the methods used in electro-plating there and in this country.

Samuel T. Arnold, Ph. D., professor of chemistry at Brown, spoke on the rôle of chemistry in daily life, pointing out that nearly all of the things considered necessary today, were based upon chemistry. After speaking of the advance made in chemistry since 1914, it was now a question whether the United States would remain a country, independent as far as chemistry is concerned, or be dominated by other countries. He declared that further progress depended solely upon scientific research, and urged that the electro-platers pursue research work in their departments, not only for the advancement of their own particular industry, but for the good of all.

Woodward Booth, manager of the New England Manufacturing Jewelers' and Silversmiths' Association, brought the greetings of his organization, and he said that after learning the objects of the Association, the voluntary banding together of men for the study and advancement of their chosen work, he felt that the manufacturers of jewelry in this great manufacturing centre ought to appreciate and co-operate with it. "In my judgment," he said, "there was never a time in the history of America when there was a greater demand for excellence than now."

George B. Hogaboom, research chemist of the Scovill Manufacturing Co., was the last speaker. His talk was more technical than those of former speakers, but he declared that the ingenuity of American workmen would more than offset the cheaper production of the foreign manufacturers as soon as the rates of exchange became normal.

During the evening a quartet composed of Daniel J. McGrath, Maurice Greenwood, George Northrup and James Conboy, with Walter J. Hearn as accompanist, sang several selections.

Visitors were present from the branches at Boston, Bridgeport, Waterbury, Connecticut Valley and New York. The Boston delegation numbered 16. The dinner committee comprised Gavin J. Tindall (chairman), John T. McDonough, Robert E. Joyce, George J. Weigand, John Andrews and Ernest Alsfeld.

WATERBURY

Our first monthly meeting was held on Friday, Dec. 9. President Wm. Gray presided; there were sixteen members present.

The minutes of the previous meeting were read and accepted.

Professor Luther A. Baleney, formerly of Yale, but now connected with a local concern, gave an exceedingly fine lecture on "Gold and Sil-

ver, from the Mine to the Plating-tank." He began with an outline of the different gold- and silver-bearing ores, and followed this with the methods of extracting the metals from the more simple ores. He spoke for over two hours. Many of those present expressed their surprise at the amount of labor and number of operations necessary to recover the metals. Professor Boleney avoided the use of technical terms, so that everyone understood and enjoyed the lecture. He promised to follow this talk with another in the spring. His subject then will be: "Copper."

Waterbury Branch is fortunate, indeed, to procure such a fine speaker.

The meeting adjourned at 10:30 p. m.

CINCINNATI

The first regular meeting of December was held on Dec. 2, at the A. E. S. Laboratory. The attendance was below par, but the meeting was very interesting.

Mr. Eichstadt of Chicago was present as a visitor. We always enjoy entertaining visitors from other Branches as they bring in new ideas and other applications of old ones.

The Convention Committee is becoming much more busy as the weeks pass. Everything will be in line very soon. The next meeting was postponed until January.

CINCINNATI IN NINETEEN-TWENTY-TWO

CLEVELAND

At our last meeting, November 26, the attendance was very small, only eight members being present, and the principal matter up for discussion was ways and means to arouse interest among the boys, and also some method to help increase our membership. The idea of holding a banquet was finally considered to be the best way as this Branch has never tried that experiment as yet. The date and hotel where the banquet will be held will be settled on at our next meeting.

As the last Saturday of December falls on New Year's Eve, our next meeting will be postponed until January 6th.

Mr. Ter Doest, Akron, Ohio, our delegate to the last convention, was on hand and enlivened our meeting with general remarks on the several phases of convention work, and he paid the convention committee his very highest compliments for their handling of such a very successful affair. He told us particularly to keep our eye on Dr. Blum's experiments toward the determination of acidity of nickel solutions as brought forward in his address at the Convention.

BOSTON

Boston Branch met at their new quarters, the American House, on Friday, December 16, with the President in the chair. After the regular business was completed, Past-President Mackie gave his fourth talk,

the subject of which was: "The Metals that May be Found in a Nickel Solution." It was very good, and while we do not have many members at our meeting, those who stay away do not know what they are missing. In his talks he shows how to find out what is in the solution and how to precipitate them and separate each metal. These are the things that every plater should know, so those who do not attend are missing something. The meeting adjourned at 10:30 p. m.

GRAND RAPIDS

The Grand Rapids Branch held its regular monthly meeting on Dec. 15 at the Vocational High School, with a small attendance. President Whalley presided.

Principal Frazee of the Vocational High School notified the assembly that a room was being prepared for a laboratory for this Society's private use, so that any member of the Grand Rapids Branch will have free access to the laboratory and can come to it any time of the day or night and work out his problems.

Mr. Frazee asked that the Branch make out a list of the equipment they desired, so the engineers could go ahead with their plans.

Mr. Allen gave an interesting talk on different deposits and showed by means of a diagram their relation to iron and which had the greatest rust-resisting qualities.

CHICAGO

The regular monthly meeting wa held Dec. 10th at the Chicago Hardware Club. President Burt presided and all the officers were present.

The committee appointed to draw resolutions on the death of A. O. Norberg reported and were discharged.

The committee appointed with E. Lamoreaux as chairman, to secure location for the annual banquet, reported that the Elks' Club could be secured for Friday, January 20th. The proposal was accepted and the committee was made the permanent banquet committee.

MILWAUKEE

Milwaukee's regular educational meeting fell on Thursday, Nov. 24, Thanksgiving Day, and the meeting was postponed. The following questions were taken from the Question-Box at the regular December business meeting.

NOTE OF EDITOR:—On account of lack of space, we were obliged to leave out the Chicago and Milwaukee Question-Boxes.

"The future is lighted for us with the radiant colors of hope. Strife and sorrow shall disappear, peace and love shall reign supreme. The dream of poets, the lesson of priest and prophet, the inspiration of the great musician, is confirmed in the light of modern knowledge."—John Fiske.

NEW MEMBERS

Boston

H. A. Guertin.....81 Fairfield St., Worchester, Mass.

Chicago

Theodore C. Geimer.....2513 N. Racine St., Chicago, Ill.
Welsford S. Traise.....c/o C. H. Hauser & Co.,
.....Erie & Franklin Sts., Chicago, Ill.

Connecticut Valley

F. W. Carmon.....Sissen Drug Co., Hartford, Conn.

Detroit

Sylvester D. Kuhry.....526 Oak Ridge Ave., Ferndale, Mich.

Milwaukee

John Geissman.....766 Teutonia Ave., Milwaukee, Wis.

Newark

J. J. Donovan.....46 East Park St., Newark, N. J.

Philadelphia

Vincent Green.....2432 N. Park Ave., Philadelphia, Pa.
J. A. Munning (Associate).....447 Bourse Bldg., Philadelphia, Pa.
R. C. Ledig (re-instated).....2015 W. Ontario St., Philadelphia, Pa.
A. B. Canning (Associate) (re-instated).....
.....133 Great Hampton St., Philadelphia, Pa.

Providence-Attleboro

Wilfred J. Masse.....77 East St., Attleboro, Mass.

Waterbury

W. V. Coleman (Associate).....150 Bridge St., Waterbury, Conn.
B. W. Snagg.....42 Prospect St., Ansonia, Conn.
Hugh Byrnes.....812 East Main St., Waterbury, Conn.
Barrie Hackett.....P. O. Box 368, Oakville, Conn.
Thomas Hemlock.....19 Camp St., Waterbury, Conn.
Harold Pierson (Associate).....54 Wildwood Ave., Waterbury, Conn.
Louis Martel.....40 Fox St., Waterbury, Conn.
William Gaunt.....668 South Main St., Waterbury, Conn.
Samuel Stearns.....276 Baldwin St., Waterbury, Conn.
George Snagg.....561 Piedmont St., Waterbury, Conn.
C. R. Clyne.....80 Ives St., Waterbury, Conn.
Thomas Kane.....c/o Waterbury Novelty Co., Waterbury, Conn.
Frank L. Griffing.....Box 286, Beacon Falls, Conn.

APPLICATIONS FOR MEMBERSHIP

Chicago

J. W. Barnmore.....4730 Lexington Ave., Chicago, Ill.

New York

Chris J. Wermlund.....104 Barron Ave., Woodbridge, N. J.
George Giffault.....128—4th Ave., New York, N. Y.
P. Goring.....155 Roseberry Ave., Clerkenwell, London, England

Toledo

John Steinleelmer.....519 Ewing St., Fremont, Ohio

TRANSFERS GRANTED

Chicago

Joseph Triska.....Transferred to New York
T. C. Eichstaedt.....Transferred to Detroit

Rochester

T. Jordan.....Transferred to Philadelphia

ADDRESS CHANGES

Chicago

C. H. Gaylord (new address).....1346 East 6th St., Los Angeles, Calif.
W. G. Meggers (new address).....Elmhurst, Ill.
E. S. Thompson (new address).....2646 Seminary Ave., Chicago, Ill.

CHICAGO BANQUET

WILL BE HELD AT THE ELKS' CLUB, FRIDAY, JANUARY 20th, 1922

With E. Lamoreaux as Chairman, O. E. Servis, H. E. Willmore, F. J. Liscomb, and many other good men on the Committee, the success of the Banquet is assured. The office of the Editor was not supplied with details before going to press, but there is sure to be

"Something Doing Every Minute"

ATTENTION

St. Louis Branch A. E. S.

WILL HOLD THEIR ANNUAL BANQUET JANUARY 28th AT THE AMERICAN ANNEX

It Will Be Different!

Come and See **Reservations, $2.00 per plate**

Notify Committee Chairman E. J. Musick, 915 Chestnut St., St. Louis, Mo.

All Members, Attention!

THE COMMITTEE ON REVISION OF THE CONSTITUTION

Requests that members having any suggestions to make with regard to changes or additions to the Constitution, should send their suggestions to the Chairman at the earliest possible moment.

Address George B. Hogaboom, 211 Woodlawn Terrace, Waterbury, Conn.

A Branch Secretary Suggests

That all members who use the mails in remitting their dues

DO NOT USE A PRIVATE CHECK IN PAYMENT

Send the money by P. O. Money Order, Express Money Order, or certified check. Private checks are subject to a discount, and the Branch cannot afford to lose the discount. Also private accounts sometimes ARE OVERDRAWN.

BRANCH DIRECTORY

BOSTON

Regular meetings are held second and fourth Thursdays of each month, at 8 p. m., at the American House, Boston. Secretary, A. W. Garrett, 37 Dorset St., Dorchester, Mass.

BRIDGEPORT

Meets third Friday of each month in its laboratory, 260 John St., Bridgeport, Conn. Secretary, L. J. Maraffi, 744 Hancock Ave., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., at the Briggs House, Randolph and Wells Sts. Secretary, F. J. Hanlon, 2855 N. Richmond St., Chicago, Ill.

CINCINNATI

Meets on the first and third Friday of each month, at 1262 State Ave. Secretary, W. J. Husing, 729 McMakin Ave., Cincinnati, Ohio.

CLEVELAND

Meets last Saturday of each month at Hotel Winton. Secretary, B. F. McCormick, 2024 Wyandotte Ave., Lakewood, O.

CONNECTICUT VALLEY

Meets at Hartford, Conn. Secretary, G. E. Vibberts, 31 Crown St., Hartford, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, G. Van Derau, 61 Bish Ave. Dayton, Ohio.

DETROIT

Meets first Friday of each month at room 1219 Dime Bank Building at 8 p. m. Secretary, O. H. Phelps, 951 Clay Ave., Detroit, Mich.

GRAND RAPIDS

Meets on the second Wednesday of each month at the Vocational High School, 129 Bostwick Ave., NE. Secretary, J. Andrew Warner, 738 Fairview Ave., N. E., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1728 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at the West Side Bank Bldg. Secretary, R. Steuernagel, 1508 Concordia Ave., Milwaukee, Wis.

MONTREAL

Secre... ...x. 48 Craig West, Montreal, Quebec, Canada.

NEWARK

Meets first, third and fifth Fridays of each month at Forresters' Home, 20 Central Ave., Newark, N. J., at 8 p ... Secretary ... F. Carlson, 225 West Grand St., Rahway, N. J

...cond and fourth Fri... ...at the Broadway Central Hotel Parlors, ... York City. Secretary ...t 163rd St., New York, N. Y.

Meets first Friday of each mo... ...on Laboratory Building, University of Pennsylvania, 34th and Spruc... ..., P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBUR...

Mee... ...irst Saturday of each month at 8 p. m., ... United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 26 Custom House St., Room 16. Secretary, C. J. Poyton, 269 Ohio Ave., Providence, R. I.

READING

Secretary, C. H. Bingham, 127 Greenwich St., Reading, Pa. (New Secretary not yet elected.) Regular meeting is held on the second Tuesday of each month.

ROCHESTER

Meets every second and fourth Friday of each month, at Hotel Seneca. Secretary, E. E. Fitch, Jr., 607 Sawyer St., Rochester, N. Y.

SYRACUSE

Secretary, M. J. Crean, 109 Court St., Syracuse N. Y.

ST. LOUIS

Meets first Saturday of each month at Barr Branch Library, corner Jefferson and Lafayette Sts. Secretary, H. H. Williams, 4156 Botanical Ave., St. Louis, Mo.

TOLEDO

Meets first Thursday of each month at Toledo University Science Building, Electro-Platers' Room, corner Cherry and Page Sts. Secretary, H. L. Myers, 410 Palmer, Toledo, Ohio.

TORONTO

Meets second Thursday of each month at Occident Hall, Bathurst and Queen Sts. Secretary, C. Kemish, 271 Boston Ave., Toronto, Ontario, Canada.

WATERBURY

Meets every second and fourth Friday of each month. Secretary, Wm. Delage, 47 Prospect St., Waterbury, Conn.